

CLAIMS

1. An embolization material that has a water swelling ratio of 30% or more and is formed as particles containing a synthetic polymer, being degradable in a phosphate buffered saline of 37°C.
2. An embolization material, according to claim 1, wherein the synthetic polymer is a water insoluble poly(ethylene glycol) copolymer.
3. An embolization material, according to claim 2, which has a water swelling ratio of 100% or more.
4. An embolization material, according to claim 3, which is formed as virtually spherical particles at 37°C.
5. An embolization material, according to claim 4, which has a particle size distribution width in a range of average particle size \pm 100 micrometer.
6. An embolization material, according to claim 1, wherein the remaining mass after it is immersed in a phosphate buffered saline of 37°C for 28 days is 80% or less of the weight of it not yet immersed.
7. An embolization material that has a water swelling ratio of 30% or more and is degradable in a phosphate buffered saline of 37°C, being formed as virtually spherical particles with an average particle size of 50 μ m or more.

8. An embolization material, according to claim 7, which contains a water insoluble poly(ethylene glycol) copolymer.

9. An embolization material, according to claim 8, which has a water swelling ratio of 100% or more.

10. An embolization material, according to claim 9, wherein the remaining mass after it is immersed in a phosphate buffered saline of 37° C for 28 days is 80% or less of the weight of it not yet immersed.

11. An embolization material that is composed of a water insoluble polymer, in which when the film formed from the water insoluble polymer is saturated with water, it has an elastic modulus in tension of 1500 MPa or less.

12. An embolization material, according to claim 11, wherein the film saturated with water has an elastic modulus in tension of 4 to 400 MPa.

13. An embolization material, according to claim 12, wherein the elastic modulus in tension of the film saturated with water is 60% or less of the elastic modulus in tension of the film in the dry state.

14. An embolization material, according to claim 13, wherein the film saturated with water has a tensile elongation of 100% or more.

15. An embolization material, according to claim 14, which has a water swelling ratio of 100% or more.

16. An embolization material, according to claim 15, wherein the remaining mass of the water insoluble polymer after it is immersed in a phosphate buffered saline of 37° C for 28 hours is 80% or less of the weight of it not yet immersed.

17. An embolization material, according to claim 16, wherein the water insoluble polymer is a block copolymer with a structure in which the structure of a biodegradable polymer and the structure of a water soluble polymer are chemically bonded to each other.

18. An embolization material, according to claim 16, wherein the water insoluble polymer is a poly(ethylene glycol) copolymer.

19. An embolization material comprising a water insoluble poly(ethylene glycol) copolymer.

20. An embolization material, according to claim 19, wherein the water insoluble poly(ethylene glycol) copolymer is a copolymer with a structure in which a poly(ethylene glycol) derivative and a biodegradable polymer are chemically bonded to each other.

21. An embolization material, according to claim 19, wherein the water insoluble poly(ethylene glycol) copolymer is a copolymer with a structure in which a biodegradable polymer is chemically bonded to the hydroxyl groups of a poly(ethylene glycol) derivative.

22. An embolization material, according to claim 20, wherein the water insoluble poly(ethylene glycol) copolymer is a mixture consisting of a poly(ethylene glycol) copolymer containing a polymer synthesized from L-lactic acid or L-lactide as the structure

of the biodegradable polymer and a poly(ethylene glycol) copolymer containing a polymer synthesized from D-lactic acid or D-lactide as the structure of the biodegradable polymer.

23. An embolization material, according to claim 20, wherein the poly(ethylene glycol) derivative as a component of the water insoluble poly(ethylene glycol) polymer has a structure in which a compound having three or more hydroxyl groups and poly(ethylene glycol) are chemically bonded to each other.

24. An embolization material, according to claim 21, wherein the water insoluble poly(ethylene glycol) copolymer has a weight average molecular weight of 3000 to 100000, and the structure of the poly(ethylene glycol) derivative existing in the poly(ethylene glycol) copolymer has a weight average molecular weight of 2000 to 50000.

25. An embolization material, according to claim 21, which has a water swelling ratio of 100% or more.

26. An embolization material, according to claim 21, which is formed as particles at 37° C.

27. An embolization material, according to claim 26, which has an average particle size of 50 to 2000 micrometer.

28. An embolization material, according to claim 26, which has a particle size distribution width in a range of average particle size \pm 100 micrometer.

29. An embolization material, according to claim 26, which is formed as virtually spherical particles at 37° C.

30. An embolization material, according to claim 25, wherein the remaining mass after it is immersed in a phosphate buffered saline of 37° C for 28 days is 80 wt% or less of the weight of it not yet immersed.

31. An embolization material, according to claim 25, which can be swollen with at least any one of purified water, physiologic saline and water soluble X-ray contrast medium.

32. An embolization material, according to claim 25, which further holds a water soluble X-ray contrast medium in it.

33. An embolization material, according to claim 25, which has flexibility of being deformed in response to the form of the blood vessel at the time of embolization for allowing the blood flow to be stopped.

34. An embolization material, that contains a synthetic polymer, has a water swelling ratio of 30% or more, is degradable in a phosphate buffered saline of 37° C, and is formed as virtually spherical particles with an average particle size of 50 micrometer or more, wherein the synthetic polymer is a water insoluble poly(ethylene glycol) copolymer and the film formed from the synthetic polymer and saturated with water has an elastic modulus in tension of 1500 MPa or less.

35. An embolizing agent, having the embolization material as set

forth in any one of claims 1 through 34 dispersed in a physiologic saline.

36. An embolization method, comprising the steps of inserting a catheter percutaneously into a blood vessel of an body, to let its tip reach the site to be blocked, and injecting a solution containing the embolization material as set forth in any one of claims 1 through 34 through the catheter into the site to be blocked, for blocking the blood vessel.